

REMARKS

The Applicants have now had an opportunity to carefully consider the remarks set forth in the Office Action mailed November 3, 2005. All of the rejections are respectfully traversed. Amendment, reexamination and reconsideration of the application in light of the following amendments and remarks, as well as the remarks filed in Applicants' Response C, are respectfully requested.

The Office Action

In the Office Action mailed November 3, 2005:

a Response to Arguments filed August 8, 2005 was provided;

claims 1-3 were rejected under 35 U.S.C. 35 U.S.C. §102(e) and/or §102(a) as being anticipated by U.S. Patent No. 6,222,648 to Wolf, et al. ("Wolf"); and

claims 4 and 5 were rejected under 35 U.S.C. §103(a) as being unpatentable over Wolf and further in view of the Balasubramanian-1996 ("Balasubramanian") and U.S. Patent No. 5,612,902 to Stokes ("Stokes").

The Finality of the Rejection is Premature

Before final rejection is in order, a clear issue should be developed between the Examiner and the Applicant (MPEP 706.07). Item 6 at the bottom of page 4 of the present Detailed Office Action indicates that "the rejection has been maintained, but clarified." It is respectfully submitted that even if the present Office Action identifies a clear issue between the Examiner and the Applicant, such identification did not occur before the final rejection. Therefore, it is respectfully submitted that the finality of the present rejection is premature and withdrawal of the final rejection is respectfully requested.

The Present Application

The present application is directed toward systems and methods for detecting glitches or transient errors in color measurement signals and, when such glitches are detected, temporarily replacing the erroneous signal with a reasonable replacement signal so that system stability can be maintained.

The Cited References

In contrast, the cited references are unrelated to measurement error detection or temporarily replacing a measured signal with a reasonable substitute.

Instead, Wolf discloses a method and apparatus for periodically upgrading the color calibration of printer or other display device.

Stokes allegedly discloses a method and system for automatic characterization of a color printer.

Balasubramanian discloses refinement of printer transformations using weighted regression.

Reply to the Response to Arguments

Section 5 of the Detailed Action indicates that the features upon which the Applicants rely are not recited or excluded in the rejected claims. However, the portion of the Applicants' arguments referenced by the Office Action (i.e., that the output of the MAPP 2 of Wolf cannot be both an expected color signal and a color error value) was submitted as part of an identification of flaws in the logic or understanding of the reasons for rejection presented in the previous Office Action.

Section 5 of the present Office Action also indicates that the previous rejection was referring to the inputs and not the output of the MAPP 2. However, with reference to --predicting an expected color signal based on the model and monitored input--, even the present Office Action clearly indicates that the Office relies on the outputs of MAPP 1 and MAPP 2) for disclosure thereof. It is respectfully submitted that these assertions of the Office Action represent logical inconsistencies. Clarification is respectfully requested.

In any event, the reference to inputs of MAPP 2 appears to be a reference to the two arrowheads associated with the bottom edge of the MAPP 2 as depicted in FIG. 1 of Wolf. However, it is respectfully submitted that one of said arrows represents output from densitometer/spectrophotometer 70 and represents information provided to the MAPP 2 only during periodic measurements of color patches (column 6, lines 3-11). The other of said arrows represents colorimetric image data (column 3, lines 44-47). The colorimetric terms may reference CIE color space ($L^*a^*b^*$, for example)(column 3, lines 50-51). During operation of the printer, when a request for a color arrives, 1) an $L^*a^*b^*$ request arrives at the low density compensation device. Using MAPP 2 this request is converted into $L^*a^*b^*$

coordinates that are sent as requests to the extended printer. 2) This L*a*b* request arrives at the high-density compensation device that is within the extended printer. Using MAPP 1, this request is converted into L*a*b* coordinates that are requested at the physical printer. 3) The requested color is then printed (column 6, lines 16-26).

It is respectfully submitted that the MAPP 2 does not compare the signal from the densitometer 70 with the signal from the document creator 10. Instead, the signal from the densitometer is used during a calibration of the MAPP 2. Then, during operation, the MAPP 2 is used to convert a request for a color into L*a*b* coordinates that are sent as a request to the extended printer. Furthermore, the output of the MAPP 2 is a transformed version of the input signal and not a color or measurement error signal. Wolf simply does not disclose or suggest that the MAPP 2 compares a document signal to a measured signal. Moreover, even if Wolf did make such a disclosure or a suggestion, such a disclosure or suggestion does not disclose or suggest comparing a measured color signal to an expected color signal or expected measured color signal to produce a color or measurement error value.

With regard to the argument that even if the output of, for example, MAPP 1 is taken to be an expected color signal, MAPP 2 cannot provide a comparison of that signal with a measured color signal since the output of MAPP 1 is not received as input into MAPP 2, the Office Action asserts that the signal result from MAPP 1 is converted into a densitometer signal which is then fed into MAPP 2. However, this reasoning casts the signal from the densitometer as an expected color signal which, even if the MAPP 2 performed a comparison, which it does not, logically implies that the signal associated with the other arrow at the bottom of the MAPP 2 (i.e., from the document creator 10) is interpreted by the Office to be a measured color signal, which it clearly is not.

For at least the foregoing reasons, **claims 1-5** are not anticipated and are not obvious in light of Wolf taken alone or in combination with Stokes and/or Balasubramanian.

The Claims are Not Anticipated

Claims 1-3 were rejected under 35 U.S.C. §102(e) and/or §102(a) as being anticipated by Wolf. However, **claim 1** recites:

A method of processing transient errors produced in a color measurement system monitoring a color producing process, the method comprising:

implementing a model of the color producing process;

monitoring an input to the color producing process;

predicting an expected color signal based on the model and the monitored input;

measuring an output color produced by the color producing process to produce a measured color signal;

comparing the measured color signal to the expected color signal to produce a color error value, and;

selectively replacing the measured color signal based on the color error value.

It is respectfully submitted that Wolf does not disclose or suggest a method of processing transient errors produced in a color measurement system monitoring a color-producing process. Moreover, Wolf does not disclose or suggest comparing a measured color signal to an expected color signal to produce a color error value or selectively replacing the measured color signal based on the color error value.

In this regard, it is respectfully submitted that the reasoning of the present Office Action is self contradictory and, therefore, unclear. Page 2 of the Office Action identifies outputs of MAPP 1 and MAPP 2 as predictions of expected colors. However, page 4 of the Office Action asserts that one of the inputs to MAPP 2 is relied on as an expected color signal and that the output of the MAPP 2 is not relied on for disclosure of an expected color signal. Clarification is respectfully requested.

In any event, in support of the assertion that Wolf discloses comparing the measured color signal to the expected color signal to produce a color error value, the Office Action directs the attention of the Applicants to the MAPP 2 disclosed in FIG. 1 of Wolf and suggests that the MAPP 2 performs a comparison of the document signal with the measured signal. However, **claim 1** clearly indicates that the expected color signal is predicted based on a model of a color-producing process and a monitored input. It is respectfully submitted that the input signal $R_cG_cB_c$ is not predicted based on a model of a color-producing process. Moreover, the MAPP 2 does not perform comparison of the input signal $R_cG_cB_c$ with a measured signal. Instead, as explained above, Wolf discloses that the MAPP 2 is constructed by experimentally determining a mapping from requested $L^*a^*b^*$ to

printed L*a*b*. This is done by requesting color patches to be printed at each of the low-density grid points and measuring the coordinates of each printed patch. This mapping is updated periodically (column 6, lines 3-8). During operation, Wolf discloses that an L*a*b* request arrives at the low-density compensating device. Using MAPP 2, this request is converted into L*a*b* coordinates that are sent as requests to the extended printer (column 6, lines 16-21). It is respectfully submitted that Wolf does not disclose or suggest that the MAPP 2 compares one signal to another. Moreover, it is respectfully submitted that Wolf does not disclose or suggest comparing a measured color signal to an expected color signal or expected measured color signal to produce a color error value. Moreover, Wolf does not disclose or suggest that the converted L*a*b* coordinates produced by the MAPP 2 (column 6, lines 19-20) are color error values.

Additionally, with regard to selectively replacing the measured color signal based on the color error, the Office Action directs the attention of the Applicants to column 4, lines 36-53. However, the referenced section identifies some methods of providing a transform from device independent data to device-dependent data. It is respectfully submitted that nothing in the cited portion of Wolf discloses or suggests selectively replacing a measured color signal based on a color or measured signal error that is the result of a comparison between a measured color signal and an expected color signal or expected measured color signal that is the result of a prediction based on a model of a color-producing process.

For at least the foregoing reasons, **claim 1**, as well as **claims 2-5**, which depend therefrom, is not anticipated by Wolf.

With regard to **claim 2**, the Office Action asserts that Wolf discloses replacing the measured color signal with a predicted color signal based on the expected color signal and directs the attention of the Applicants to column 4.

However, the Applicants have carefully reviewed column 4 and can find no disclosure or suggestion of replacing a measured color signal with a predicted color signal based on an expected color signal. Clarification is respectfully requested.

Moreover, the attention of the Examiner is directed to FIG. 1 of Wolf and column 3, lines 29-31. Wolf discloses “periodically measuring subsets of set color patches and using this information to update said correction value.” Wolf does not disclose or suggest selectively replacing the measured color signal (i.e., output of densitometer/spectrophotometer 70). Furthermore, Wolf does not disclose or

suggest replacing a measured color signal with a predicted color signal. Still further, it is respectfully submitted that Wolf does not disclose or suggest replacing a measured color signal with a predicted color signal based on an expected color signal.

For at least the foregoing additional reasons, **claim 2** is not anticipated and is not obvious in light of Wolf.

Claim 3 recites storing a measured color value representative of the measured color signal in association with the monitored input. In explaining the rejection of **claim 3**, the Office Action asserts that Wolf discloses storing modifications and directs the attention of the Applicants to column 4, lines 43-45.

However, lines 43-45 of column 4 of Wolf indicate that values stored in the lookup table can be empirically derived, as in Sakamoto, or calculated or extrapolated based on empirical information, as in Po-Chieh Hung. The remainder of the paragraph associated with those lines is directed to methods for providing a transform from device-independent data to device-dependent data (column 4, lines 37-38). It is respectfully submitted that disclosure of providing a transformation does not disclose or suggest storing a measured color value representative of a measured color signal in association with a monitored input.

For at least the foregoing additional reasons, **claim 3** is not anticipated and is not obvious in light of Wolf.

The Claims are Not Obvious

Claims 4 and **5** were rejected under 35 U.S.C. §103(a) as being unpatentable over Wolf in view of Balasubramanian and Stokes. In explaining these rejections, the Office Action stipulates that Wolf does not disclose the models used or historical data.

Claim 4 recites replacing the measured color signal with a historical color signal based on a historical value related to the monitored input. It is respectfully submitted that Wolf, Balasubramanian and Stokes do not disclose or suggest replacing a measured color signal. Furthermore, it is respectfully submitted that Wolf, Balasubramanian and Stokes do not disclose or suggest replacing a measured color signal with a historical color signal. Furthermore, Wolf, Balasubramanian and Stokes do not disclose or suggest replacing the measured color signal with a historical color signal based on a historical value related to a

monitored input.

For at least the foregoing additional reasons, **claim 4** is not anticipated and is not obvious in light of Wolf, Balasubramanian and Stokes taken alone or in any combination.

Furthermore, the Office Action does not suggest a motivation for combining the models of Balasubramanian or Stokes with the subject matter of Wolf. Indeed, it is respectfully submitted that Wolf does not disclose or suggest the use of models to predict an expected color signal, comparing the expected color signal to a measured color signal or replacing a measured color signal with historical color signals or any other kind of signal. Furthermore, it is respectfully submitted that any motivation to combine Balasubramanian and Stokes with the subject matter of Wolf can only have been found in the present application. Therefore, the rejection of **claims 4 and 5** is based on impermissible hindsight. For at least the foregoing additional reasons, **claims 4 and 5** are not anticipated and are not obvious in light of Wolf, Balasubramanian and Stokes taken alone or in any combination.

New Claim 20 is not Anticipated and is not Obvious

New **claim 20** recites subject matter similar to that recited in **claim 1**. In this regard, arguments similar to those submitted in support of **claim 1** are submitted in support of new **claim 20**. Additionally, **claim 20** recites an expected measured color signal and a measured signal error.

It is respectfully submitted that new **claim 20** is supported throughout the specification and, for example, in FIGS. 3-5 and page 9, lines 6-29; page 10, line 23 - page 11, line 16; page 12, line 16 - page 14, line 5, and does not represent new matter and does not require a new search.

It is respectfully submitted that Wolf does not disclose or suggest predicting an expected measured color signal based on a model of a color producing process and a monitored input, measuring an output color produced by the color-producing process to produce a measured color signal, comparing the measured color signal to the expected measured color signal to produce a measured signal error value and selectively replacing the measured color signal based on the measured signal error value.

For at least the foregoing reasons, new **claim 20** is not anticipated and is not obvious in light of Wolf, Balasubramanian and Stokes taken alone or in any combination.

Telephone Interview

In the interests of advancing this application to issue the Applicant(s) respectfully request that the Examiner telephone the undersigned to discuss the foregoing or any suggestions that the Examiner may have to place the case in condition for allowance.

CONCLUSION

Claims 1-5 remain in the application. Reconsideration of the Restriction Requirement and reinstatement of **claims 6-19** is respectfully requested. **Claim 20** has been added. For at least the foregoing reasons, the application is in condition for allowance. Accordingly, an early indication thereof is requested.

Respectfully submitted,

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